

Commentary: The UNEP/SETAC Life Cycle Initiative after One Year

The UNEP/SETAC Life Cycle Initiative – A Personal View of the Results after One Year

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1 The Origin of the Initiative

The first source for the start of the UNEP/SETAC Life Cycle Initiative lies in the SETAC Europe working groups on Life Cycle Impact Assessment (LCIA). The first working group in this area was active from 1994 to 1996, the second from 1998 to 2000. The first working group had a purely scientific focus; the second working group set an aim to identify the best available practice in LCIA. It was realised that this should preferably not be done under the umbrella of SETAC alone, as a scientific organisation. A logic authoritative partner would be ISO, which was in the process of completing the 14040 series. However, in an ISO-TC207 meeting, it was established that, particularly at this stage, ISO would not take up this task. Nevertheless, there was the need for an authoritative organisation showing willingness to join SETAC.

2 The Role of UNEP

In March 1999, the Paris office of the United Nations Environment Program was approached, housing the Division of Technology, Industry and Economics (UNEP DTIE). The proposal to start a joint initiative together with SETAC was directly welcomed, as it fitted quite well into UNEP's recent priority to stimulate the development of a life cycle economy. This was even more so, in view of the forthcoming world summit in Johannesburg in 2002. However, three conditions were made. The first condition was that the programme should not only focus on Life Cycle Impact Assessment (LCIA), but also include Life Cycle Inventory (LCI) databases, or rather, it should encompass the LCA tool as a whole. This resulted into two programmes of the initiative, the LCI and the LCIA program. The second condition being other life cycle approaches related to Life Cycle Thinking should also be included, focusing on practice rather than science, to subsequently give rise to the Life Cycle Management (or LCM) programme of the initiative. And thirdly, a global outreach was required, with an important role of the developing countries, specifically resulting in the appointment of experts from developing countries in the consecutive gremia of the initiative. Together these ideas and requirements lead to the following mission of the initiative: to bring into practice world-wide life cycle approaches.

3 The Start of the Initiative

When it became clear that the above conditions could be effectively accomplished, activities started to obtain funding; a number of governmental agencies and companies were approached, achieving a reasonable success. The initiative was formally launched on April 29, 2002, at UNEP's 7th High-level Seminar on Cleaner Production, held in Prague. A number of further decisions were made. The International Life Cycle Panel (ILCP) was established as the highest body of the initiative.

Furthermore, a secretariat for the initiative was founded at the UNEP office in Paris. An executive director was appointed as well as a co-ordinator for each of the three programmes. And the green light was given for an enquiry of user needs regarding possible deliverables of the initiative, and three definition studies – one for each of the three programs of the initiative – altogether with the aim to define the state-of-the art of the programs and to define a work programme.

4 Topics of Interest

Now, one year later, we can look back and evaluate what has been achieved during the first year. The following topics are regarded: deliverables; procedural aspects; financial support; international outreach; link to UNEP's 10-year programs; standardisation and methodology development; capacity building and sharing of experiences, and finally, method of procedure. These topics will be discussed briefly in the following sections. Where relevant, factual developments will be contrasted with expectations during the initial preparation of the initiative.

5 Deliverables

Of course, attention should first be paid to the deliverables, meaning the results, which are the basis for the existence of the initiative. This in itself was not fully obvious from the start. Firstly, attention was drawn to topics which were analysed and discussed. Then the focus shifted towards the implementation of activities, under strict UNEP and SETAC rules. Thereafter, requirements were set on deliverables, as an outcome of activities. The User Needs Survey went quite well for the LCA programmes, with about 200 respondents mainly from the life cycle data and software practitioners and the method developers, however, the majority came from Europe and North-America, with a further focus on academia and consultancy. To avoid bias, differences between regions and work occupation were analysed and put clearly into evidence. The survey continues at the initiative's website, which is particularly important for the LCM program, given the broad diversity of possible users of life cycle approaches in general and the smaller response for this program up to now. Nevertheless, this input was very useful as guidance for the definition studies. The definition studies took up much more time than expected. The idea was that these studies could well build on the results of the SETAC Europe working groups in these areas, making it possible to perform such a study at short notice. However, as a consequence, for the global outreach requirement author teams had to be established with global representation, which, in part, necessitated to start from fresh. Obviously, this positively contributed to the acceptability of the results.

After one year, the three studies are in the process of finalisation, including the implementation of a peer review step. A major

event was the organisation of a workshop together with ICMM in Montreal, on Metals and LCA, including interesting discussions on mining in a life cycle perspective. A book will be published, obtainable as a hard copy. Moreover, workshop reports from Vienna and Barcelona are available on the initiative's website (www.unep/ie.org/pc/sustain/lcinitiative).

The LCM definition study comprises the full scope of life cycle approaches, using LCA, other types of tools, only life cycle thinking or other types of qualitative approaches. The main topics in the LCM definition study concern the innovation of products and services in a life cycle perspective; communication on life cycle information; management tools along the life cycle; stakeholder responsibility along the life cycle; and tools in the social and economic dimensions of sustainability, here, in particular, life cycle costing (LCC). The LCI definition study has its focus on LCI databases; it stresses the need to have an updated global overview, and it focuses on topics such as data quality assessment and documentation, the definition of an exchange format between databases, and consistent LCI nomenclature. Furthermore, the state-of-the-art is described by a number of main methodological issues. Finally, a proposal is made for the establishment of a global library of LCA (and LCM) case studies. First of all, the LCIA definition study develops a general framework for this phase of LCA, building on the earlier work of the SETAC-Europe working groups. In addition, it gives a critical overview of the state-of-the-art of the different impact categories at midpoint level.

6 The Process

In the following, some of process aspects are highlighted. The first issue to mention is the process complexity we encountered at UNEP. To make one thing very clear from the start: an authoritative organisation cannot exist without clear bureaucratic procedures. If UNEP is to authorise the process and results of the initiative, the initiative has to follow strict procedural steps. Nevertheless, as most initiators were accustomed with an academic or consultancy background, it was a surprise to find out how many steps had to be taken before an activity was accepted or a budget transmitted. Also tasks and internal procedures had to be defined precisely. Together with the technical content aspects, this led to a 42-page business plan for the initiative. As it appeared that this plan, in fact, had to be updated every month due to a continuous flow of new and good ideas, a limit was passed. The choice was made for separate short notes, e.g. about fundraising or a standard operation practice (SOP) for the establishment of working groups, for the organisation of workshops or for a peer review process. This brought back the needed flexibility. During this first year the need became evident that the secretariat be established at the office of UNEP to deal with the specific procedural aspects of the Life Cycle Initiative in a direct way and to support the organisational processes.

7 Financial Support

A number of activities have and are being performed to obtain funds for the implementation of the initiative. Originally, this was thought not to be too difficult. A budget of 500,000 USD per year was envisaged. Indeed, practice was more difficult than expected, but eventually several governmental agencies and companies took the leadership in pioneering the domain, despite the events of 9–11 and the imminent depression. Willingness to support appeared to be preferably linked to specific

activities or deliverables, rather than to support the general functioning of the initiative. In the first year, approx. USD 300,000 were collected, and for the second year another USD 300,000 or slightly more are foreseen, both coming from industry and governmental agencies, including research institutes. This budget appeared to be sufficient to run the first series of activities, including the definition studies and the functioning of the secretariat as an important cost factor. All in all, the expenses for the secretariat seem to be quite acceptable in view of the advantages gained with regard to the facilitation of the procedural aspects and the close link to the global political agenda on sustainable consumption and production.

The limited availability of budget for the general functioning of the initiative precluded broad support of experts in working groups. In fact, in the last stage of the SETAC working groups on LCI and LCIA, this potential support by the initiative was a very attractive perspective. However, the viewpoints on the desirability of this support differed. UNEP expressed its view that one of the attractive points to engage in a co-operation with SETAC was its active scientific community, which was willing to provide voluntary input. Too easy money may, in fact, spoil this process rather than stimulate it. The solution was found in a two-fold way; firstly, it was decided that the budget should be available for the main functions in the process. Secondly, UNEP promised that it would support individual experts to obtain funds from their national government.

8 International Outreach

Regarding the international outreach of the initiative, three aims have been identified: (1) a global representation in the various bodies of the initiative; (2) the organisation of activities around the world, with particular involvement of experts from developing countries; and (3) the organisation of capacity building material and of activities aiming at developing countries as well as small and medium enterprises (SMEs).

The first aim was well achieved, witness being the composition of the author teams and peer review groups of the definition studies. The second aim is underway, witness being workshops organised in Madrid, Tokyo, Montreal, Vienna, Chicago, Johannesburg, Tsukuba, Barcelona and Hamburg, and the plans for coming workshops in Bali, Seattle, New Zealand, Stockholm, Karlsruhe, Lausanne and Prague. The third aim is high on the agenda of the initiative and will be further explained in section 11. The high importance of capacity building is an unexpected consequence of the global outreach of the initiative; thus the inclusion of participants from developing countries led to a stronger focus on capacity building and a smaller focus on methodological issues (see further below).

The global outreach also led to an unexpected input to the initiative. Particularly during the workshop in Johannesburg in 2002, clear criticism was expressed towards the initiative by representatives from developing countries. A life cycle approach that focuses only on environment was not seen in their interest, and LCA was regarded as a too complicated device. Life cycle approaches aim to stimulate modernisation of industry, going in hand with a better environmental performance. Consequently, we must realise that environmental life cycle indicators will, in general, select against old fashioned, polluting industries and, in this way, will not help to protect employment in developing countries, in as far as it is based on the functioning of such industries. This dilemma was discussed during the workshop linked to the SETAC meeting in Hamburg. It

was thought wise to enlarge the scope of the quantitative life cycle indicators: besides environmental indicators, also safety, work conditions, costs, and possibly labour may well be included, although for the latter, of course, a selection in favour of old fashioned installations must then be avoided.

9 Link to UNEP's 10-Year Programmes on Sustainable Consumption and Production

A more general result of the work under the authority of UNEP concerns the increasing link of the initiative to UNEP's 10-year programmes on sustainable consumption and production. These programs are a direct follow-up of the 'Plan of Implementation' decided upon at the World Summit on Sustainable Development in Johannesburg in September 2002. In this implementation plan governments are, among other issues, asked to "develop production and consumption policies (...) using, where appropriate, science-based approaches, such as life-cycle analysis". The secretariat of the initiative is part of the task force on sustainable consumption and production whose remit it is to further integrate UNEP's ongoing work on cleaner production and sustainable consumption. It is evident that life cycle approaches have a key role to play in the integration of these two programmes. A function based approach will be taken as a starting point, meaning that human needs should be met by the provision of functions, such as food, shelter and mobility that are contained within the carrying capacity of the eco-system.

On the other hand, this link to the 10-year programmes will also be a challenge for the current life cycle approaches, notably LCA. These have a long-standing focus on production and waste processes; consumption processes have generally just been considered in the form of the use phase of a given product's life cycle. The above mentioned function based approach may well stimulate the formulation of broader alternatives of function fulfilment than are currently envisaged in LCA.

10 Recommended Practice and Methodology Development

In the preparation phase of the initiative, when ISO was regarded as a possible partner, standardisation of methodologies was seen as a desirable option. That was not considered too far fetched, as, for instance, the definition of global warming potentials (GWPs) and ozone depletion potentials (ODPs) is very close to standardised practice. But when joining forces with UNEP, it soon became apparent that standardisation of methods was not an option in the initiative. This is neither a task for UNEP, nor SETAC. Instead, the aim could be the identification of best available practice, or still more modest: recommended practice. Nevertheless, also this aim also met criticism: what is to be recommended? That may well be quite different under different situations. Thus the term 'generic situation dependency' was coined: the idea that different types of situations may well have their own recommended practice. This implies a large step towards more flexibility, but still avoids arbitrariness created by the existence of a number of equally good (but quite different) side-by-side methods.

Regarding LCA methodology development, it was already indicated above that this stepwise issue received less attention. During the preparation phase of the initiative, the implementation of research, as an activity inside the initiative, was seen as an important aim. This aim became under pressure when the lacking budget had to be divided. Moreover, the results of the User Needs Survey pointed significantly towards improved data

availability, data quality information, capacity building on methods, sharing of best practice experiences, and the establishment of high quality recommended practice, rather than towards further investments in methodology development. This outcome was even more surprising considering there was an over-representation of academia and consultancy coming from industrialised countries in the User Needs Survey.

Nevertheless, methodology development has to remain on the agenda of the initiative. For instance, the quality of an LCI database depends on the methods used for cut-off, system boundary definition, and allocation, let alone the choice between a marginal and an average modelling approach. This shows that consensus development (in whatever situation-dependent way) must keep its place inside the initiative, however, the method development itself should primarily be done in 'external projects', i.e. in projects outside the initiative, but with which a formal relationship can be established. Two examples are emerging, namely a relationship with the OMNIITOX project aiming at the characterisation of toxic substances, and with eLCA aiming at the development of LCA for small and medium enterprises (SMEs).

11 Capacity Building and Sharing of Experiences

In the above mentioned Plan of Implementation of the World Summit in Johannesburg it is stated: "All countries should promote sustainable consumption and production patterns, with the developed countries taking the lead and with all countries benefiting from the process (...) Develop awareness-raising programmes on the importance of sustainable production and consumption patterns, particularly among youth and the relevant segments in all countries, especially in developed countries". Linking up with these aims, the Life Cycle Initiative intends to develop regional capacity building and training programmes in Africa, Asia/Pacific, Eastern Europe, and Latin America to further promote the use of life cycle thinking around the world, as well as the exchange of information and experiences. It is envisaged that these regional capacity building and training programmes will be linked to UNEP's regional cleaner production centres, that will more and more redefine their work towards an integrated approach to sustainable production and consumption whilst, of course, putting the life cycle approaches on their agenda.

12 The Future Work Program

Up to now, the initiative, both during its preparatory phase and during its first year of full functioning, has had a 'theoretical colour': investigating user needs, writing definition studies, developing work programmes. Now the step must be made towards real implementation. This is to be achieved by the establishment of a number of task forces, based on the content of the definition studies, for which the start has been made during the recent SETAC meeting in Hamburg on April 29. In total, some 10 task forces are to be established for all three programs, each with its own specific deliverables. The Terms of Reference are currently being prepared, the application and appointment process will take place during summer 2003. So now we are in fact on a turning point: the foundation has been laid, now we have to build upon it.

When overviewing the first year, and even more when also overviewing the period of preparation, we can only observe that in a number of key aspects in the development of the initiative differs significantly from the original ideas. But this has in no way compromised the initiative as an inspiring and challenging endeavour